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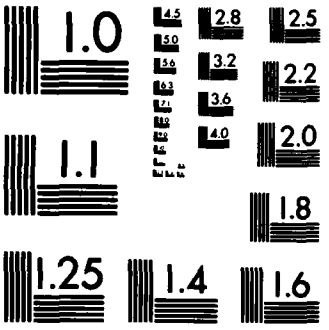

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A SIMPLE INSTRUMENT FOR ACHIEVING ACCURATE ALIGNMENT AND PRE-INSERTION STABILITY WITH MANDIBULAR BONE PLATES

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A three-dimensionally bendable defect bridging plate was first described by Schmoker et al. (1976) for the stabilization of bone grafts following partial resection of tumors of the mandible. The applications of this reconstruction plate according to ASIF principles have been described. The advantages of this plate for mandibular reconstruction are its ability to be bent in all dimensions and to be adapted to a mandible before a resection is performed. This permits an absolutely stable fixation of the mandibular fragments in their original pre-resection position. The technique of plate adaptation and drilling and tapping of the screw canals prior to resection and final placement of the plate is termed the pre-insertion phase.

Stable positioning of the reconstruction plate is essential for insuring accurate adaptation during the pre-insertion phase. Special plate-holding forceps specifically designed for this purpose insure stability of the plate and complement the accurate placement of the cortical screws used for fixation ~~(Fig. 1)~~.

Currently designed plate-holding forceps have several disadvantages. First, they have the ability to scratch the plate and remove the protective oxide layer from the metal. Second, contact of the forceps' reciprocal jaw on the bone opposing the plate can possibly damage the tapped threads in the screw canal (Fig. 2). Third, presently designed plate-holding forceps are not inherently stable. They provide only frictional contact on

the plate side and one-point contact on the reciprocal side. Finally, a problem occurs when the forceps occupy a plate hole which may be needed for subsequent screw placement. A simple modification of a readily available instrument may provide advantages over currently designed plate-holding forceps.

A Dingman bone forceps can be modified by adapting a piece of surgical tubing to fit over the labial jaw of the forceps (Fig. 3). The protected arm can be applied to the plate-side to rigidly hold the plate during adaptation, alignment, and pre-insertion fixation (Fig. 4).

SUMMARY

The modified Dingman forceps provides several advantages over currently designed plate-holding forceps. The rubber tubing prevents metal-to-metal contact of the forceps on the plate and provides increased stability to the plate. The long lingual jaws of the Dingman forceps are applied to the lingual bone at a point remote from the screw canal and this prevents damage to the prepared canals. The design of the forceps' jaws provides three-point rigidity to stabilize the plate and, therefore, insures proper alignment, adaptation, and pre-insertion fixation.

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purpose. Furthermore, the opinions expressed herein are those of the authors and are not to be construed as those of the U.S. Army Medical Department.

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LEGENDS FOR FIGURES

Fig. 1 Synthes® plate-holding forceps.

Fig. 2 Synthes® plate-holding forceps with the lingual point within a tapped screw canal.

Fig. 3 Dingman bone forceps showing size of surgical tubing necessary for protection of the labial jaw.

Fig. 4 Photograph at surgery showing two modified Dingman forceps stabiizing a reconstruction plate during the pre-insertion phase.

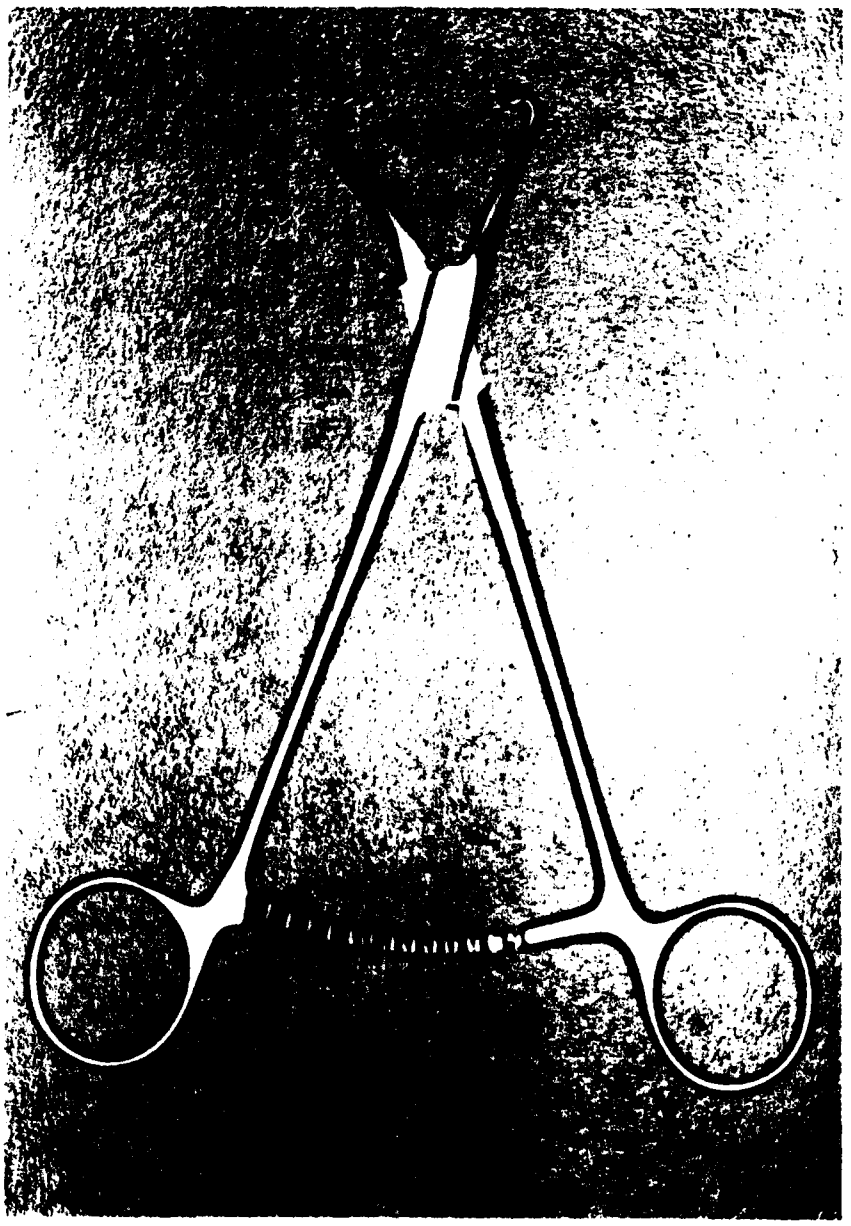

Fig. 1

Fig 2

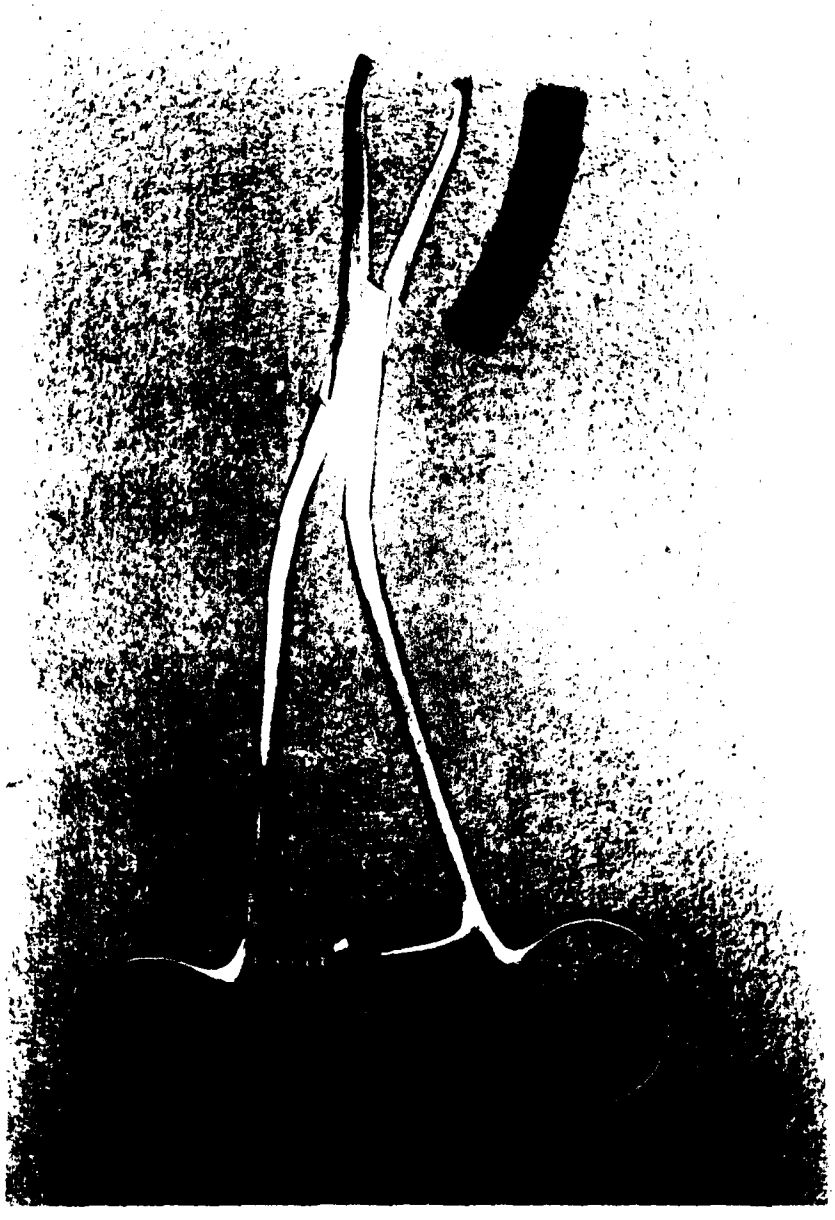

Fig 3

Fig 4

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